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University of California at San Diego
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14. ABSTRACT

The principal research effort has been towards understanding the high-frequency tail of the surface gravity wave spectrum, lengths of 2 cm to 60 cm; these a principally responsible for wind drag on water. Analysis was based on a unique data set from geophones and hydrophones at 5 1/2 km depth midway between California and Hawaii. The measured spectral intensity around 10 Hz gives a more accurate measure of local winds than the standard satellite scatterometry. A spectral gap at the 30 Hz gravity to capillary transition offers new opportunities for spectral monitoring. We are making progress towards understanding the generation processes.

A continuing effort towards the acoustic monitoring of ocean processes has been directed at the polar ocean cavities sandwiched between the floating ice sheet and the sea floor. We are exploring a possible tomography experiment in the Ross Sea with the goal of better predicting polar ice melting processes and the associated global rise in sea level.

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SECRETARY OF THE NAVY PROFESSOR OF OCEANOGRAPHY

Walter H. Munk
Scripps Institution of Oceanography, University of California at San Diego, La Jolla, CA 92093
phone: (858) 534-2877 fax: (858) 534-6251 email: wmunk@ucsd.edu

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The principal research effort has been towards understanding the high-frequency tail of the surface gravity wave spectrum, lengths of 2 cm to 60 cm; these a principally responsible for wind drag on water. Analysis was based on a unique data set from geophones and hydrophones at 5 1/2 km depth midway between California and Hawaii. The measured spectral intensity around 10 Hz gives a more accurate measure of local winds than the standard satellite scatterometry. A spectral gap at the 30 Hz gravity to capillary transition offers new opportunities for spectral monitoring. We are making progress towards understanding the generation processes.

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In May 2010 I received the Crafoord Award from the Swedish King in recognition of "lifetime achievement in oceanography" which was supported by ONR. I serve on the MEDEA panel, which is exploring (in collaboration with the Navy Department) the security implications of climate change in the Arctic and elsewhere.

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HONORS/AWARDS/PRIZES

Walter Munk, Crafoord Prize in Geosciences 2010, Royal Swedish Academy of Sciences, "for his pioneering and fundamental contributions to our understanding of ocean circulation, tides and waves, and their role in the Earth's dynamics."

Walter Munk, Österreichisches Ehrenzeichen für Wissenschaft und Kunst (The Austrian Decoration for Science and Art) 2010, The National Council of the Republic of Austria

RELATED PROJECTS

Meetings and Invited Talks

- National Academies' Ocean Studies Board, Irvine CA, 07 – 08 January 2009
- JASON Winter Study, La Jolla CA, 12 – 20 January 2009
- MEDEA ETF Meeting, Herndon VA, 19 – 20 February 2009
- Meeting of the Navy Chairs of Oceanography and RADM Carr, Arlington VA, 26 February 2009
- Roger Revelle 100th Birthday Celebration, La Jolla CA, 05 – 07 March 2009
- Michael Gregg Workshop, **Invited Lecture**: *A life-long obsession for dissipation*, Seattle WA, 15 May 2009
- JASON Summer Study, La Jolla CA, June – July 2009
- JASON Briefings, La Jolla CA, 27 – 29 July 2009
- MEDEA Oceans Panel Meeting, New Orleans LA, 17 – 19 August 2009
- NPAL Workshop, **Invited Lecture**: *A noise hole at the gravity-capillary transition (27 Hz)*, Carmel CA, 01 – 03 September 2009
- OceanObs 2009, **Invited Lecture**: *Applied Acoustical Oceanography for the Global Ocean Observing System*, Venice Italy, 21 – 25 September 2009
- Ocean Leadership Talk at Monterey Bay Aquarium Research Institute (MBARI) **Invited Lecture**: *How Can We Learn About Short Surface Waves from Measurements on the Deep-Sea Floor?*, Monterey CA, 04 November 2009
- JASON Winter Study and 50th Anniversary Celebration, Washington DC, 20 – 22 November 2009
- MEDEA Ocean Panel, Washington DC, 20 November – 01 December 2009
- Ocean Leadership Talk at Monterey Bay Aquarium Research Institute (MBARI) **Invited Lecture**: *How Can We Learn About Short Surface Waves from Measurements on the Deep-Sea Floor?*, Monterey CA, 04 November 2009
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- MEDEA Ocean Panel, Washington DC, 20 November – 01 December 2009
- National Academy of Sciences Annual Meeting, Washington DC, 25-27 April 2010
- Crafoord Prize Symposium, **Award Lecture**: *The Sound of Climate Change*, The Royal Swedish Academy of Sciences, Stockholm, Sweden, 10 May 2010
- Crafoord Prize Symposium, **Award Lecture**: *The Sound of Climate Change*, Lund University, Sweden, 12 May 2010
- Nansen Environmental and Remote Sensing Center (NERSC) **Nansen Guest Lecture**: *The Sound of Climate Change*, Bergen, Norway, 18 May 2010
- Institute of Theoretical Geophysics, **Invited Lecture**: *The Sound of Climate Change*, University of Cambridge, United Kingdom, 20 May 2010
- MEDEA Spring Meeting, **Invited Lecture**: *Acoustic Tomography*, Washington DC, 15-17 June 2010
- Land-Ice Contribution to Future Sea Level Workshop, **Invited Lecture**: *Exploring an under-ice ocean cavity with sound*, Sterling VA, 11-14 July 2010
- Ceeil H. & Ida M. Green Institute of Geophysics and Planetary Physics 50th Anniversary Symposium, **Invited Lecture**: *In the Beginning...*, San Diego, 20 October 2010

- Courant Institute of Mathematical Science, Center for Atmosphere Ocean Science Colloquium, **Invited Lecture**: *Exploring an under-ice ocean cavity with sound*, New York University, 04 November 2010
- University of California at San Diego Founder's Day, **Invited Talk**: *Roger Revelle,* 18 November 2010
- MEDEA Ocean Panel, Washington DC, 18-21 January 2011